FIG. 1

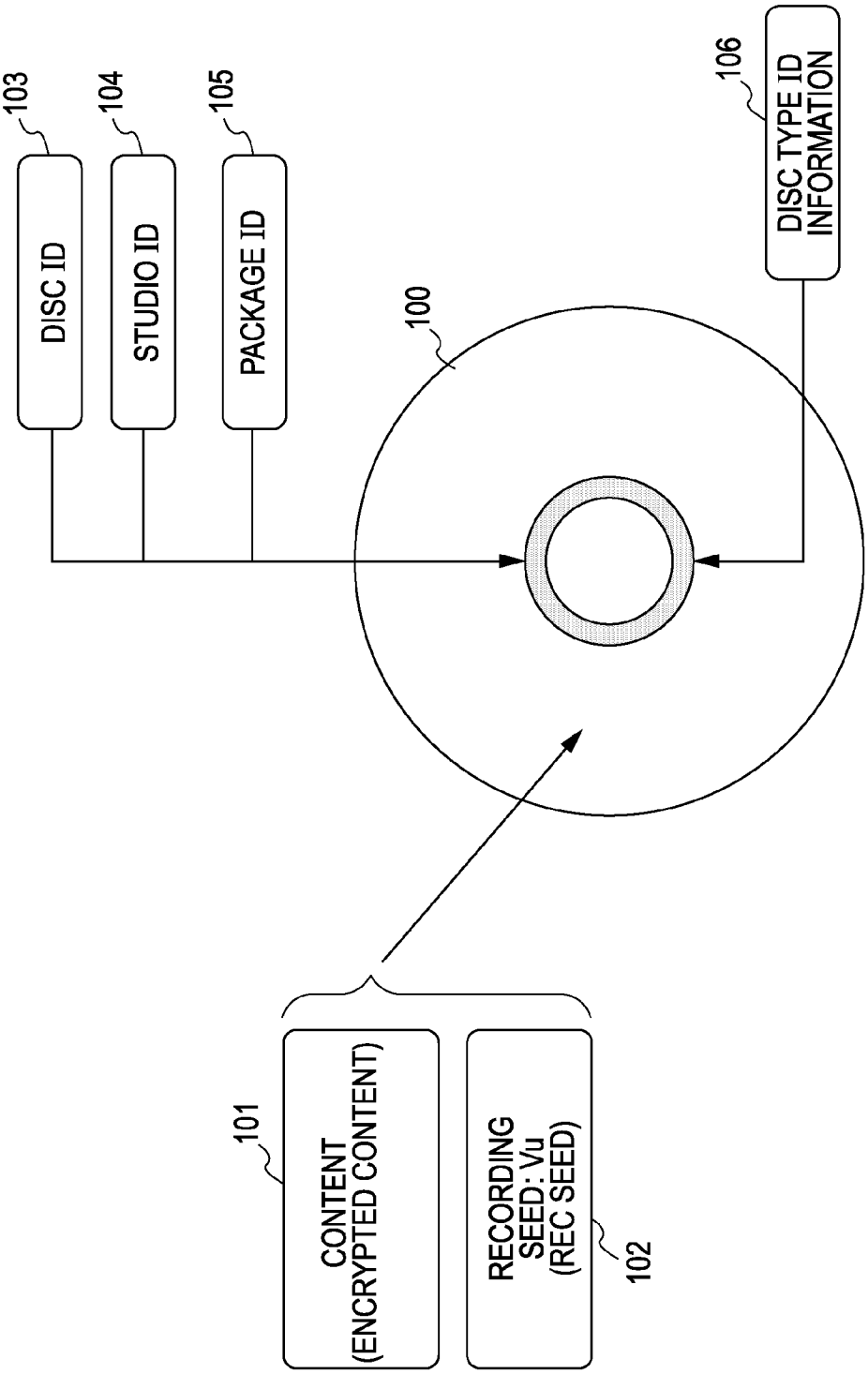

103
DISC ID
104
STUDIO ID
105
PACKAGE ID
106
DISC TYPE ID INFORMATION
100
101
CONTENT (ENCRYPTED CONTENT)
RECORDING SEED: Vu (REC SEED)
102

FIG. 2

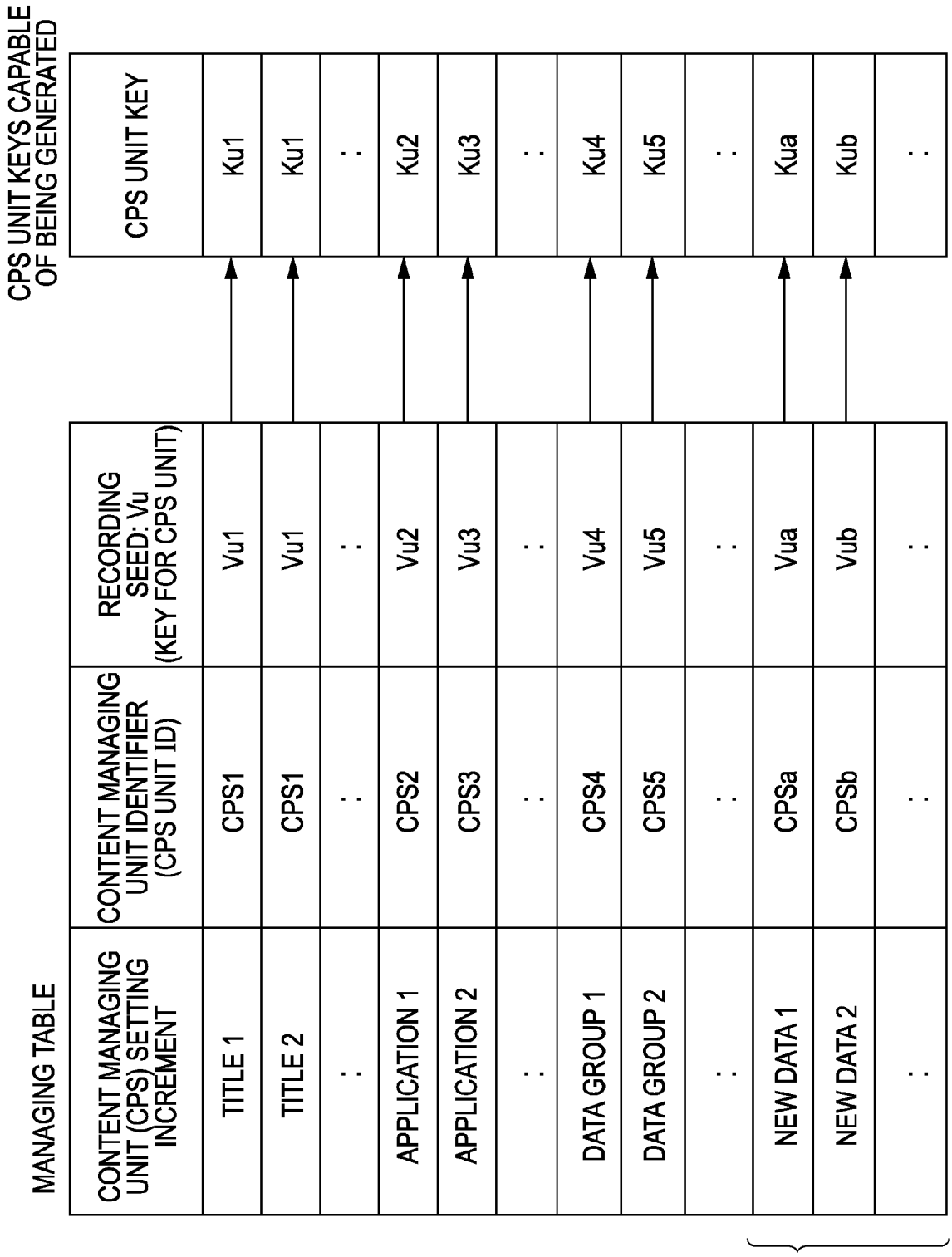

MANAGING TABLE
CONTENT MANAGING UNIT (CPS) SETTING INCREMENT
CONTENT MANAGING UNIT IDENTIFIER (CPS UNIT ID)
RECORDING SEED: Vu (KEY FOR CPS UNIT)
CPS UNIT KEYS CAPABLE OF BEING GENERATED
CPS UNIT KEY
TITLE 1
CPS1
Vu1
Ku1
TITLE 2
CPS1
Vu1
Ku1
APPLICATION 1
CPS2
Vu2
Ku2
APPLICATION 2
CPS3
Vu3
Ku3
DATA GROUP 1
CPS4
Vu4
Ku4
DATA GROUP 2
CPS5
Vu5
Ku5
NEW DATA 1
CPSa
Vua
Kua
NEW DATA 2
CPSb
Vub
Kub
121

FIG. 3

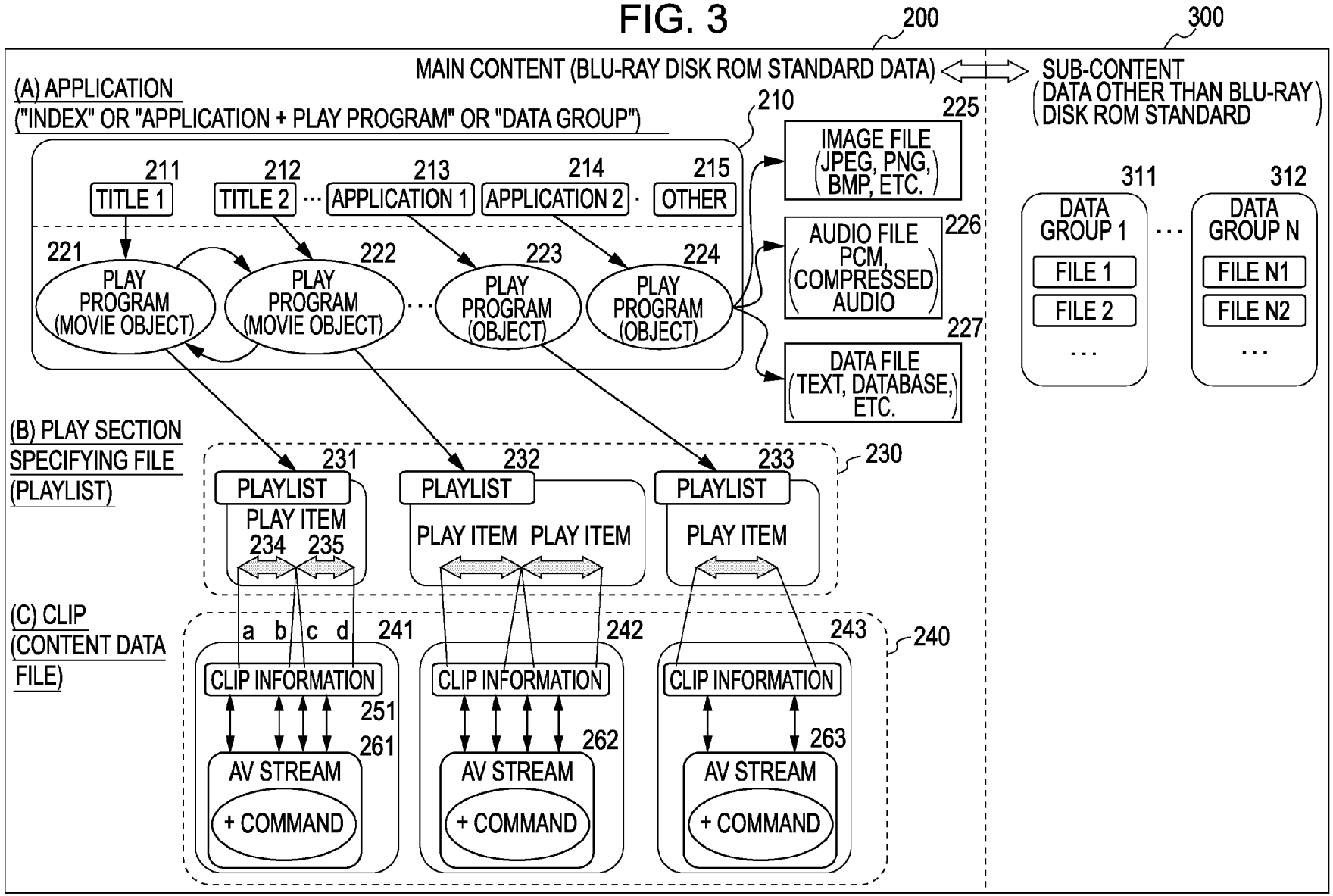

200
300
MAIN CONTENT (BLU-RAY DISK ROM STANDARD DATA)
SUB-CONTENT (DATA OTHER THAN BLU-RAY DISK ROM STANDARD)
(A) APPLICATION ("INDEX" OR "APPLICATION + PLAY PROGRAM" OR "DATA GROUP")
210
211 TITLE 1
212 TITLE 2
213 APPLICATION 1
214 APPLICATION 2
215 OTHER
221 PLAY PROGRAM (MOVIE OBJECT)
222 PLAY PROGRAM (MOVIE OBJECT)
223 PLAY PROGRAM (OBJECT)
224 PLAY PROGRAM (OBJECT)
225 IMAGE FILE (JPEG, PNG, BMP, ETC.)
226 AUDIO FILE (PCM, COMPRESSED AUDIO)
227 DATA FILE (TEXT, DATABASE, ETC.)
311 DATA GROUP 1
FILE 1
FILE 2
312 DATA GROUP N
FILE N1
FILE N2
(B) PLAY SECTION SPECIFYING FILE (PLAYLIST)
230
231 PLAYLIST
PLAY ITEM
234 235
232 PLAYLIST
PLAY ITEM PLAY ITEM
233 PLAYLIST
PLAY ITEM
(C) CLIP (CONTENT DATA FILE)
240
a b c d
241
242
243
CLIP INFORMATION
251
261
262
263
AV STREAM
+ COMMAND

FIG. 4

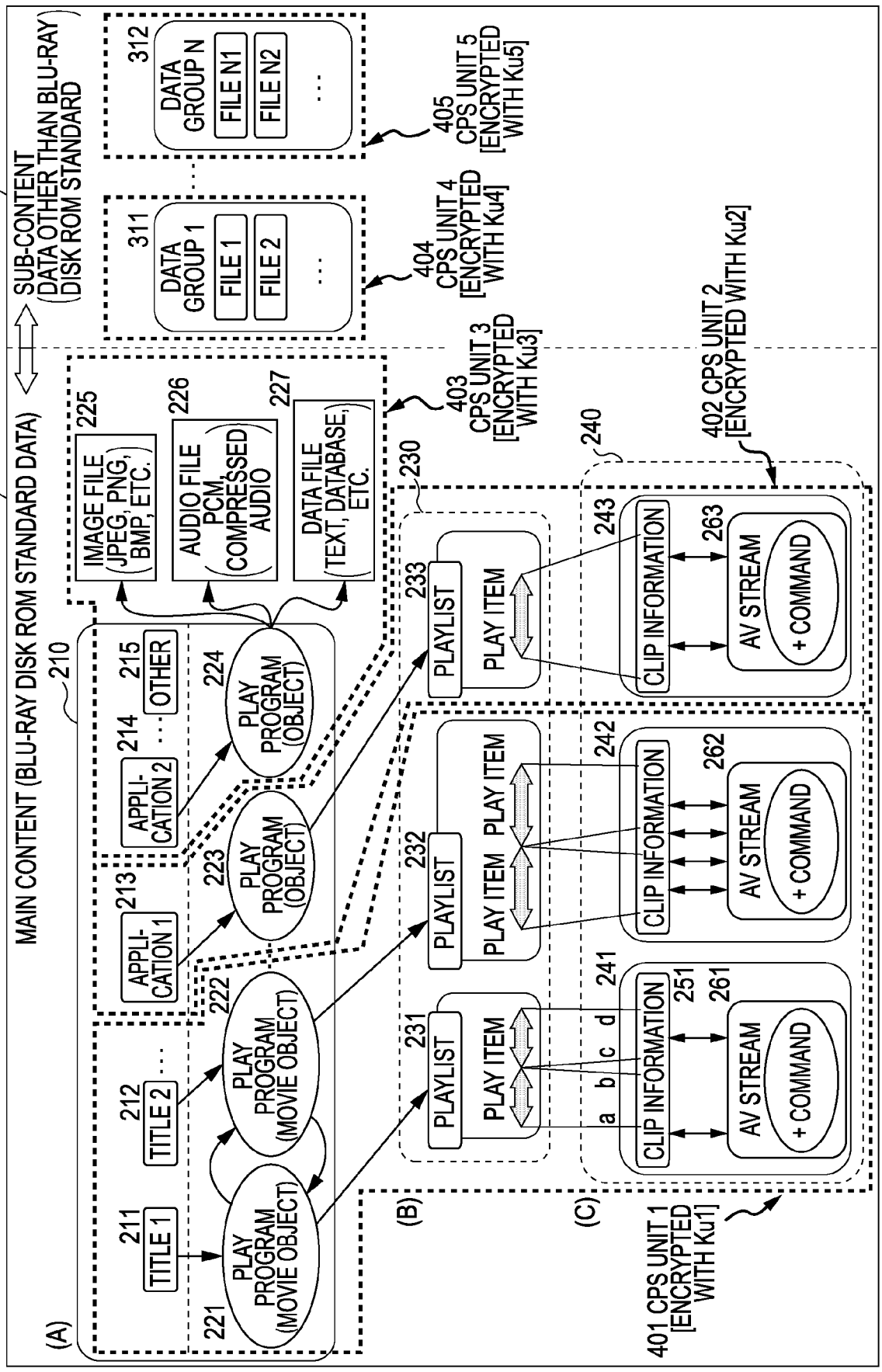

300
200
SUB-CONTENT
(DATA OTHER THAN BLU-RAY DISK ROM STANDARD)
MAIN CONTENT (BLU-RAY DISK ROM STANDARD DATA)
210
(A)
211 TITLE 1
212 TITLE 2
213 APPLI-CATION 1
214 APPLI-CATION 2
215 OTHER
221 PLAY PROGRAM (MOVIE OBJECT)
222 PLAY PROGRAM (MOVIE OBJECT)
223 PLAY PROGRAM (OBJECT)
224 PLAY PROGRAM (OBJECT)
225 IMAGE FILE (JPEG, PNG, BMP, ETC.)
226 AUDIO FILE PCM, (COMPRESSED AUDIO)
227 DATA FILE (TEXT, DATABASE, ETC.)
403 CPS UNIT 3 [ENCRYPTED WITH Ku3]
230
(B)
231 PLAYLIST
PLAY ITEM
232 PLAYLIST
PLAY ITEM PLAY ITEM
233 PLAYLIST
PLAY ITEM
240
402 CPS UNIT 2 [ENCRYPTED WITH Ku2]
(C)
241 a b c d
CLIP INFORMATION
AV STREAM
+ COMMAND
251
261
242
CLIP INFORMATION
AV STREAM
+ COMMAND
262
243
CLIP INFORMATION
AV STREAM
+ COMMAND
263
401 CPS UNIT 1 [ENCRYPTED WITH Ku1]
404 CPS UNIT 4 [ENCRYPTED WITH Ku4]
311 DATA GROUP 1
FILE 1
FILE 2
...
405 CPS UNIT 5 [ENCRYPTED WITH Ku5]
312 DATA GROUP N
FILE N1
FILE N2
...

FIG. 5

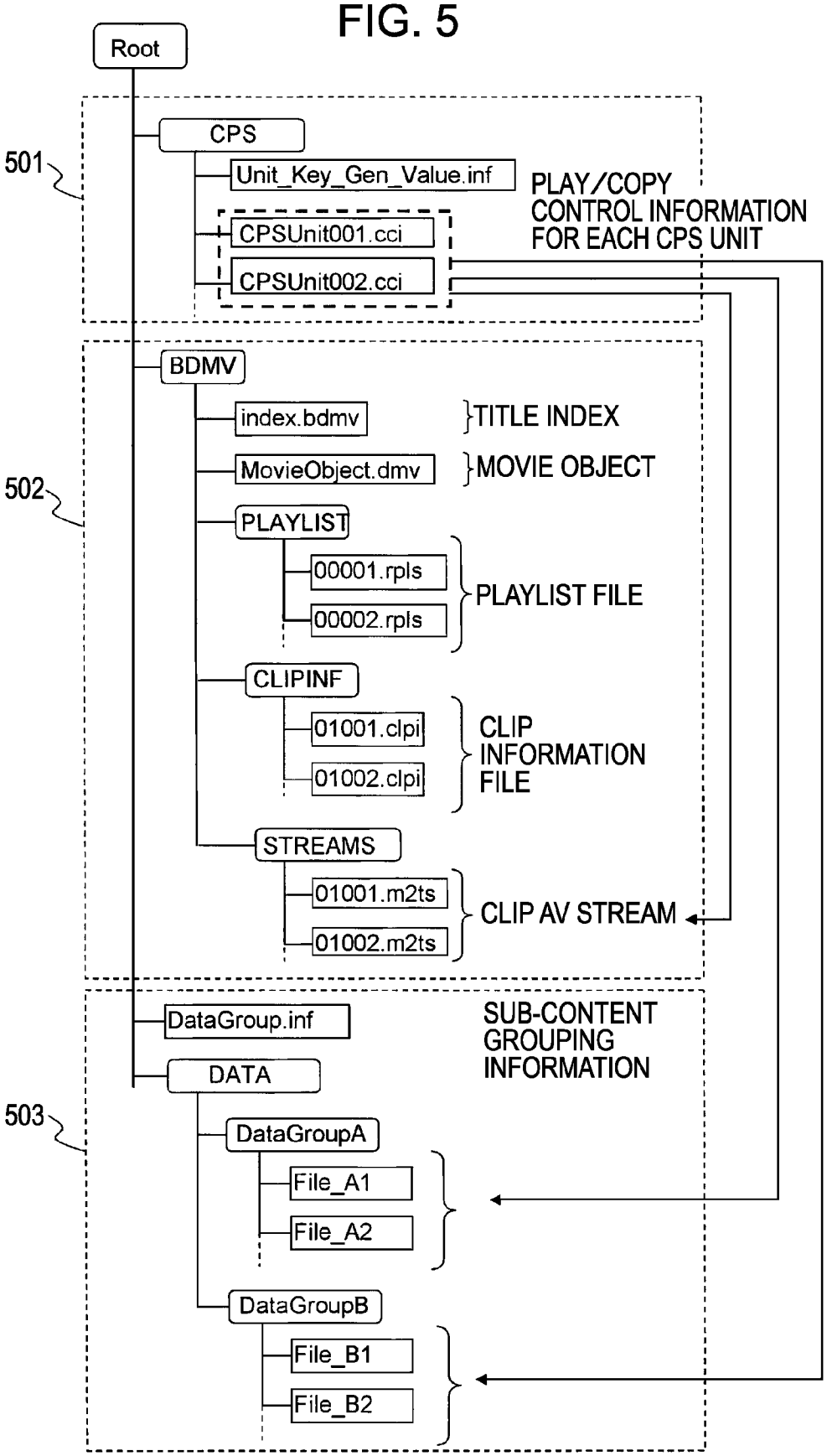

Root
501
CPS
Unit_Key_Gen_Value.inf
CPSUnit001.cci
CPSUnit002.cci
PLAY/COPY CONTROL INFORMATION FOR EACH CPS UNIT
502
BDMV
index.bdmv
TITLE INDEX
MovieObject.dmv
MOVIE OBJECT
PLAYLIST
00001.rpls
00002.rpls
PLAYLIST FILE
CLIPINF
01001.clpi
01002.clpi
CLIP INFORMATION FILE
STREAMS
01001.m2ts
01002.m2ts
CLIP AV STREAM
503
DataGroup.inf
SUB-CONTENT GROUPING INFORMATION
DATA
DataGroupA
File_A1
File_A2
DataGroupB
File_B1
File_B2

FIG. 6

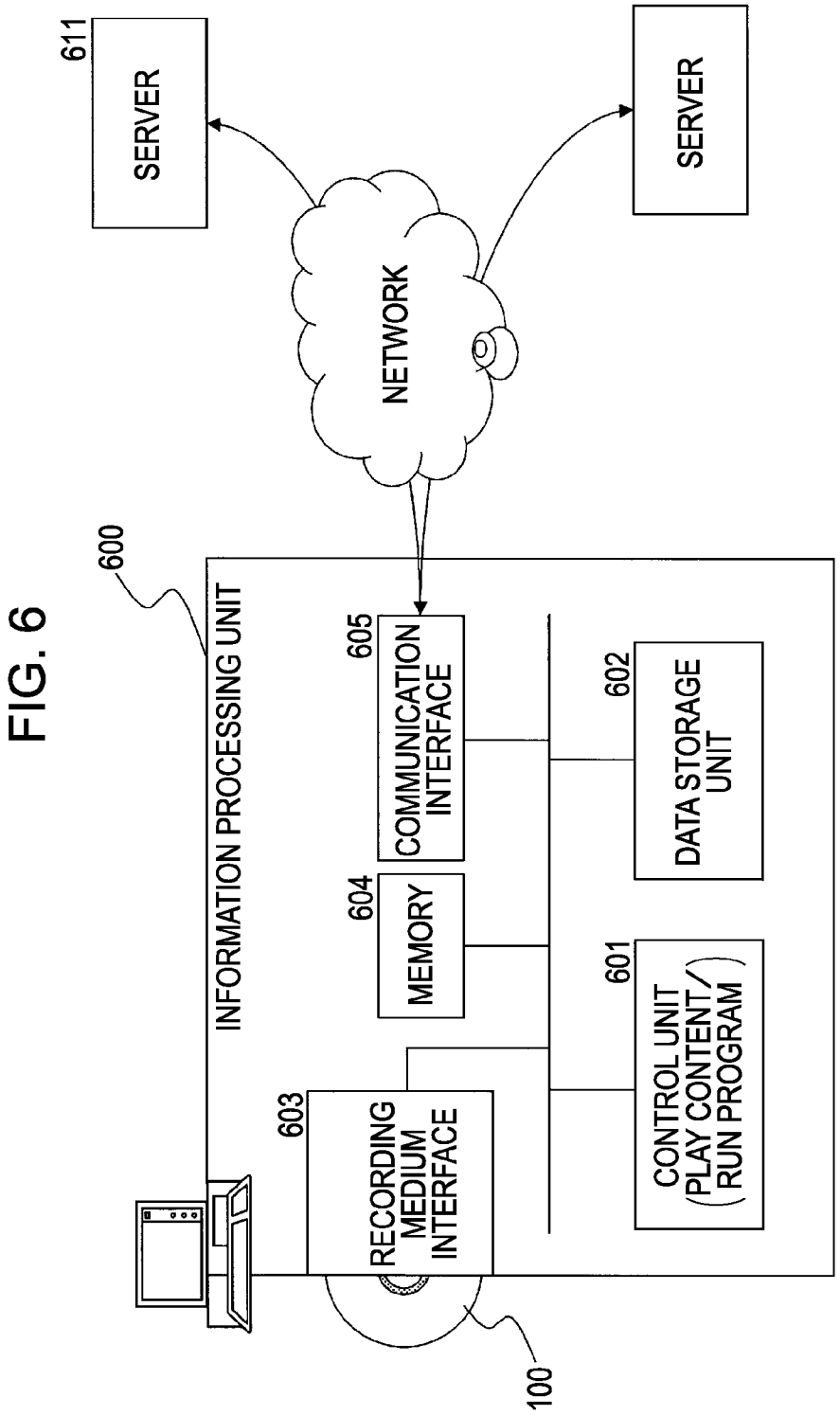

611
SERVER
SERVER
NETWORK
600
INFORMATION PROCESSING UNIT
605
COMMUNICATION INTERFACE
602
DATA STORAGE UNIT
604
MEMORY
601
CONTROL UNIT (PLAY CONTENT / RUN PROGRAM)
603
RECORDING MEDIUM INTERFACE
100

FIG. 7

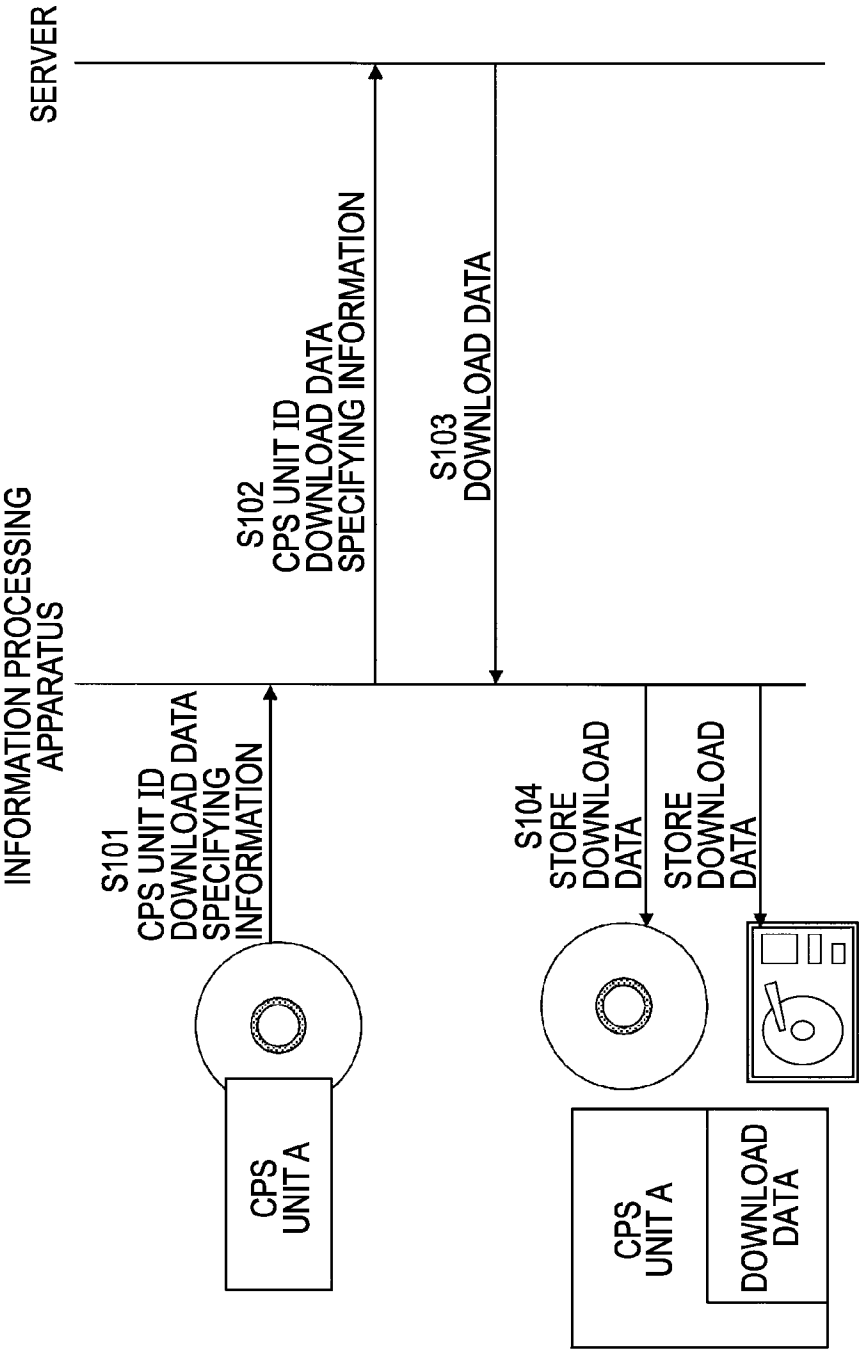

SERVER
INFORMATION PROCESSING APPARATUS
S101
CPS UNIT ID
DOWNLOAD DATA
SPECIFYING
INFORMATION
S102
CPS UNIT ID
DOWNLOAD DATA
SPECIFYING INFORMATION
S103
DOWNLOAD DATA
S104
STORE
DOWNLOAD
DATA
STORE
DOWNLOAD
DATA
CPS
UNIT A
CPS
UNIT A
DOWNLOAD
DATA

FIG. 8

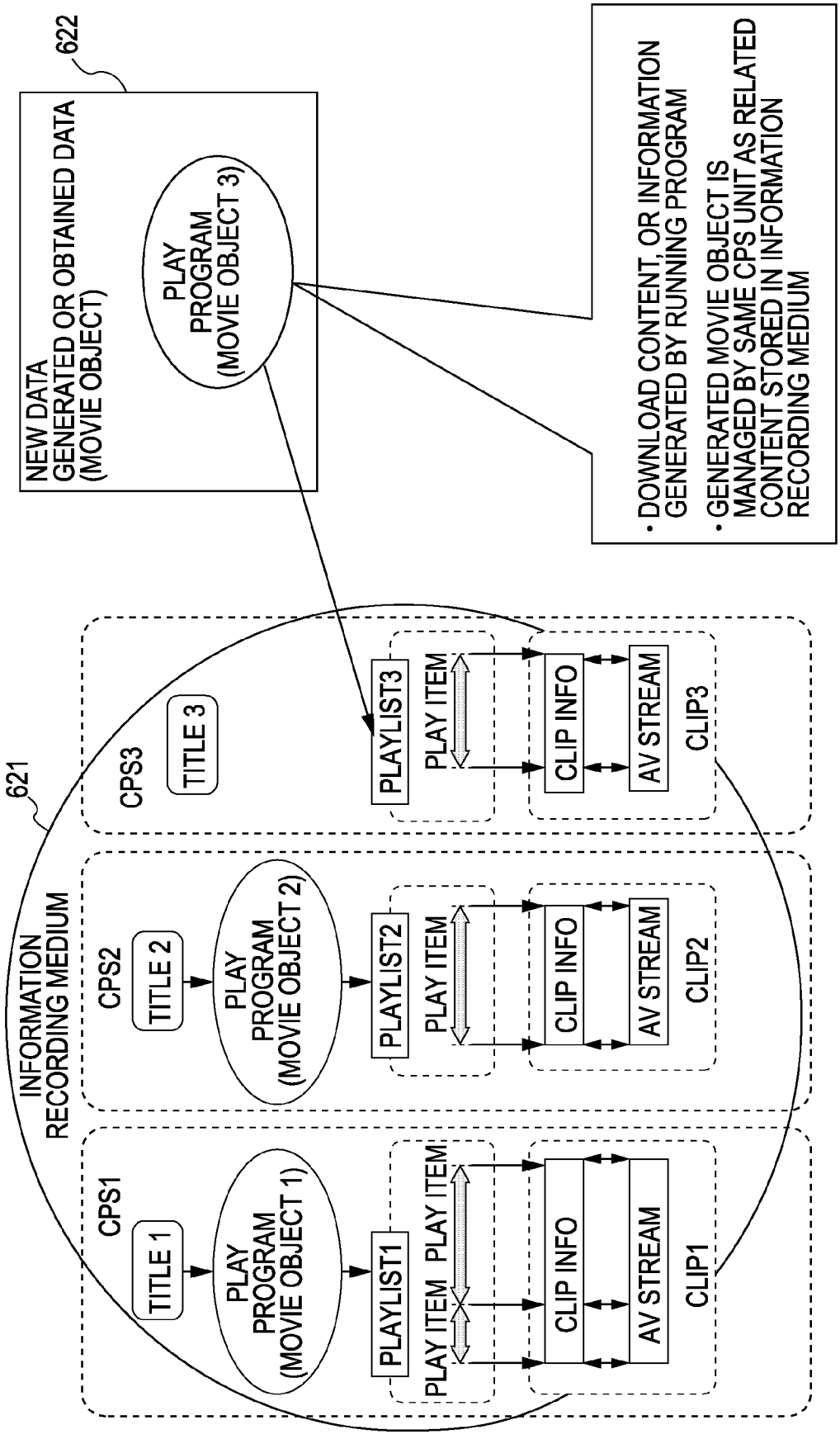

621
INFORMATION RECORDING MEDIUM
CPS1
TITLE 1
PLAY PROGRAM (MOVIE OBJECT 1)
PLAYLIST1
PLAY ITEM
PLAY ITEM
CLIP INFO
AV STREAM
CLIP1
CPS2
TITLE 2
PLAY PROGRAM (MOVIE OBJECT 2)
PLAYLIST2
PLAY ITEM
CLIP INFO
AV STREAM
CLIP2
CPS3
TITLE 3
PLAYLIST3
PLAY ITEM
CLIP INFO
AV STREAM
CLIP3
622
NEW DATA GENERATED OR OBTAINED DATA (MOVIE OBJECT)
PLAY PROGRAM (MOVIE OBJECT 3)
• DOWNLOAD CONTENT, OR INFORMATION GENERATED BY RUNNING PROGRAM
• GENERATED MOVIE OBJECT IS MANAGED BY SAME CPS UNIT AS RELATED CONTENT STORED IN INFORMATION RECORDING MEDIUM

FIG. 9

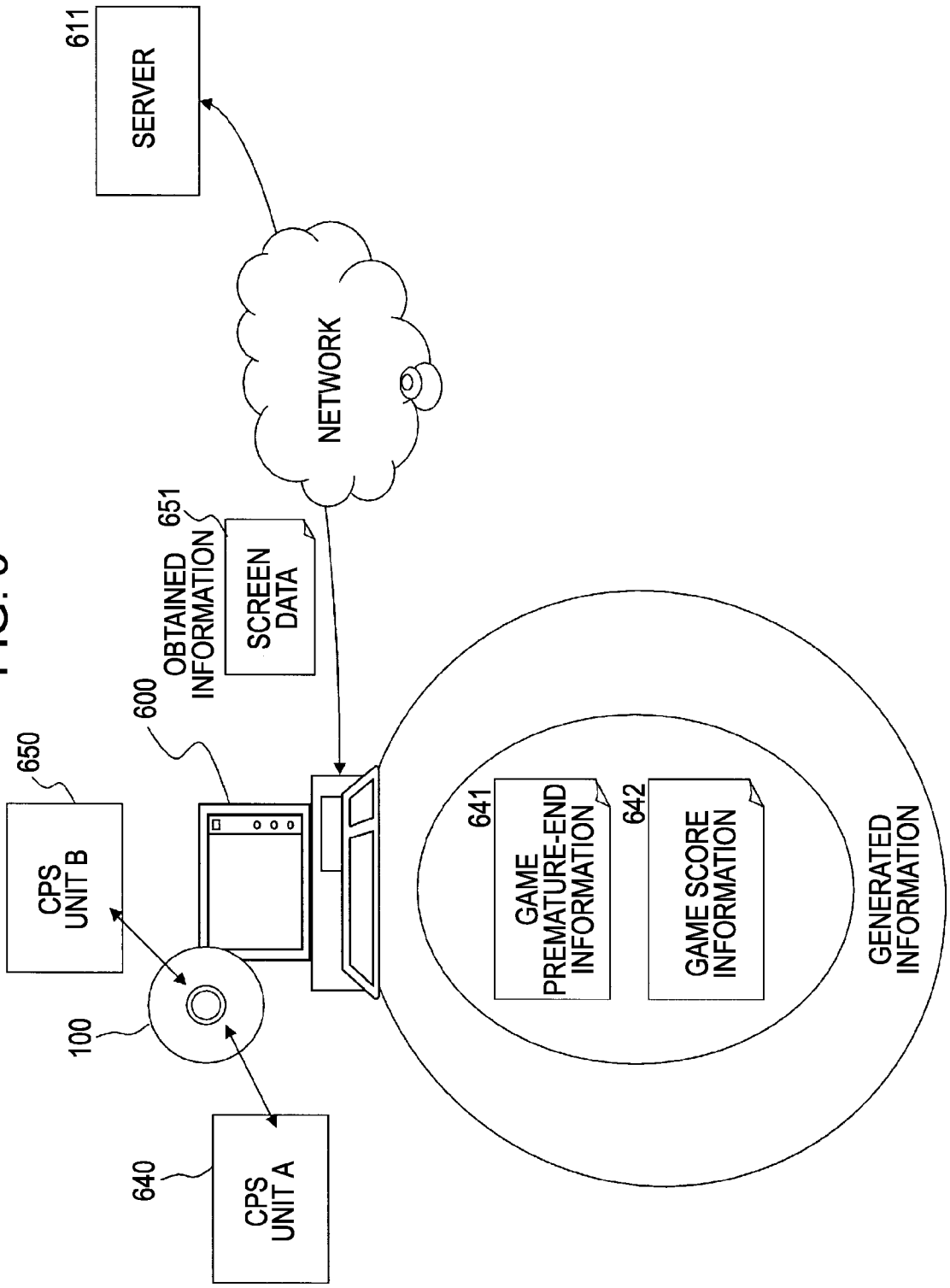

611
SERVER
NETWORK
651
OBTAINED INFORMATION
SCREEN DATA
600
650
CPS UNIT B
100
640
CPS UNIT A
641
GAME PREMATURE-END INFORMATION
642
GAME SCORE INFORMATION
GENERATED INFORMATION

FIG. 10

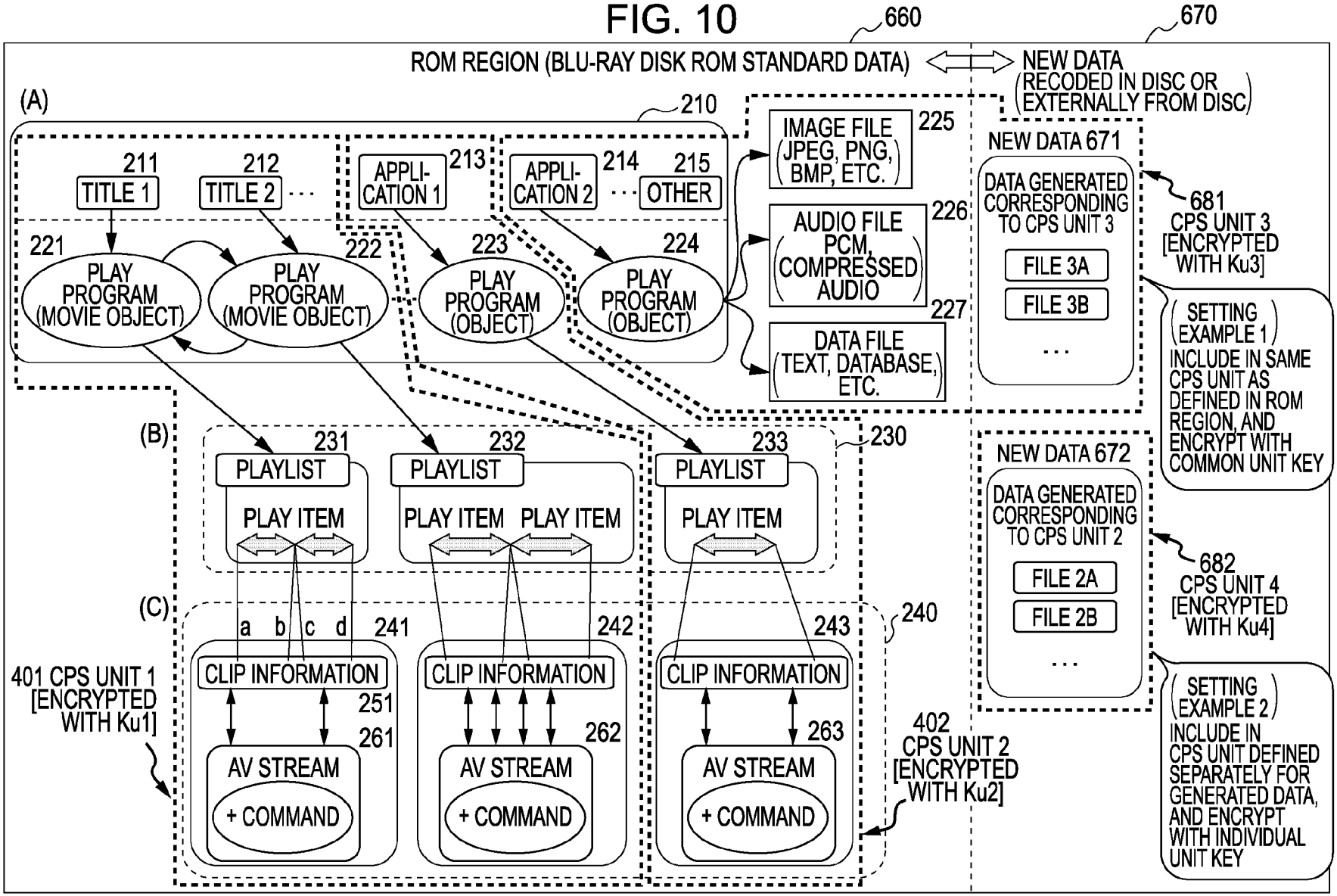

660
670
ROM REGION (BLU-RAY DISK ROM STANDARD DATA)
NEW DATA
(RECODED IN DISC OR EXTERNALLY FROM DISC)
(A)
210
211
TITLE 1
212
TITLE 2
APPLI-CATION 1
213
APPLI-CATION 2
214
215
OTHER
221
PLAY PROGRAM (MOVIE OBJECT)
222
PLAY PROGRAM (MOVIE OBJECT)
223
PLAY PROGRAM (OBJECT)
224
PLAY PROGRAM (OBJECT)
IMAGE FILE (JPEG, PNG, BMP, ETC.)
225
AUDIO FILE PCM, (COMPRESSED AUDIO)
226
DATA FILE (TEXT, DATABASE, ETC.)
227
NEW DATA 671
DATA GENERATED CORRESPONDING TO CPS UNIT 3
FILE 3A
FILE 3B
681
CPS UNIT 3 [ENCRYPTED WITH Ku3]
SETTING EXAMPLE 1
INCLUDE IN SAME CPS UNIT AS DEFINED IN ROM REGION, AND ENCRYPT WITH COMMON UNIT KEY
(B)
230
231
PLAYLIST
PLAY ITEM
232
PLAYLIST
PLAY ITEM
PLAY ITEM
233
PLAYLIST
PLAY ITEM
NEW DATA 672
DATA GENERATED CORRESPONDING TO CPS UNIT 2
FILE 2A
FILE 2B
682
CPS UNIT 4 [ENCRYPTED WITH Ku4]
SETTING EXAMPLE 2
INCLUDE IN CPS UNIT DEFINED SEPARATELY FOR GENERATED DATA, AND ENCRYPT WITH INDIVIDUAL UNIT KEY
(C)
240
a b c d
241
CLIP INFORMATION
251
AV STREAM
261
+ COMMAND
242
CLIP INFORMATION
262
AV STREAM
+ COMMAND
243
CLIP INFORMATION
263
AV STREAM
+ COMMAND
401 CPS UNIT 1 [ENCRYPTED WITH Ku1]
402 CPS UNIT 2 [ENCRYPTED WITH Ku2]

FIG. 11

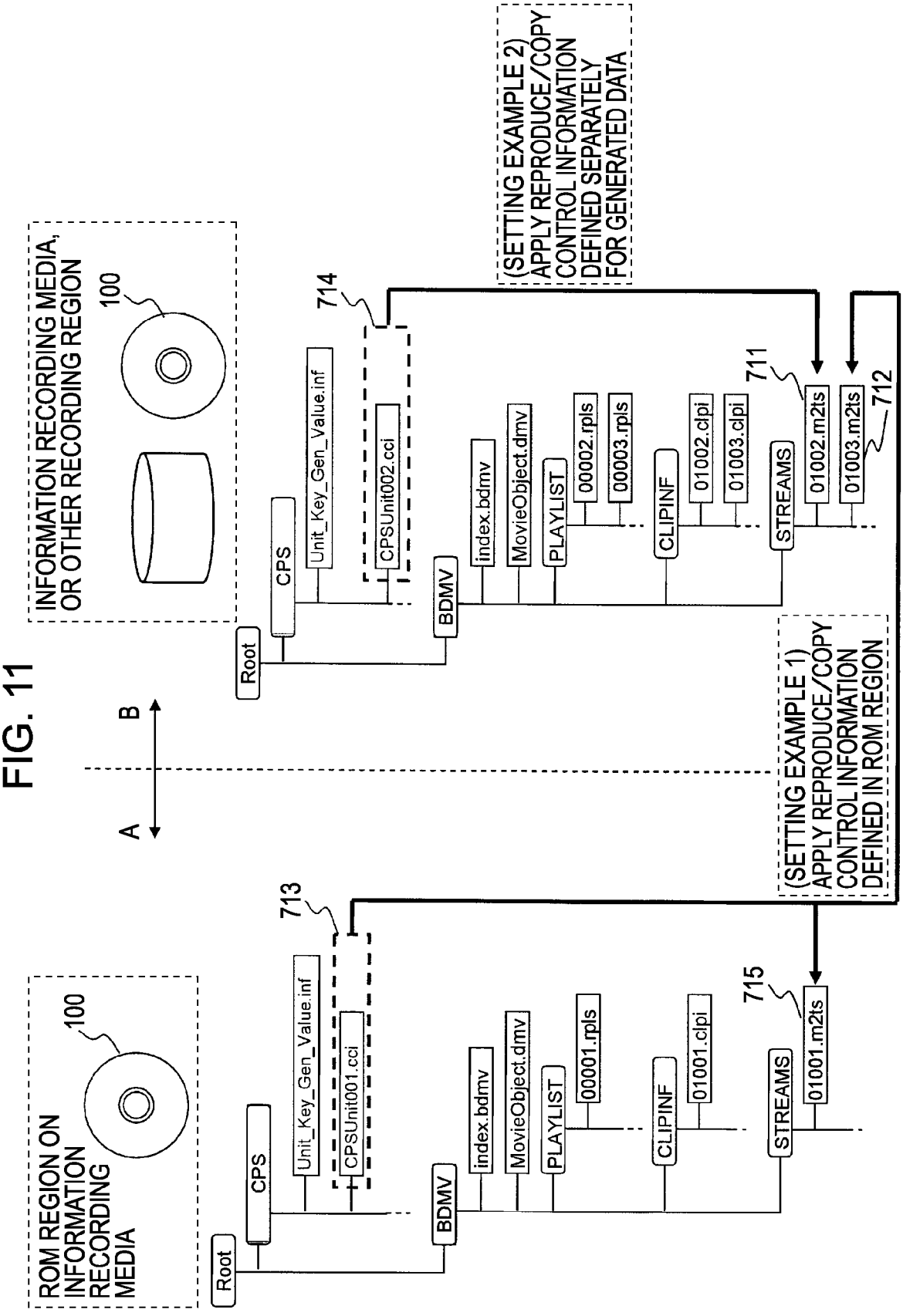
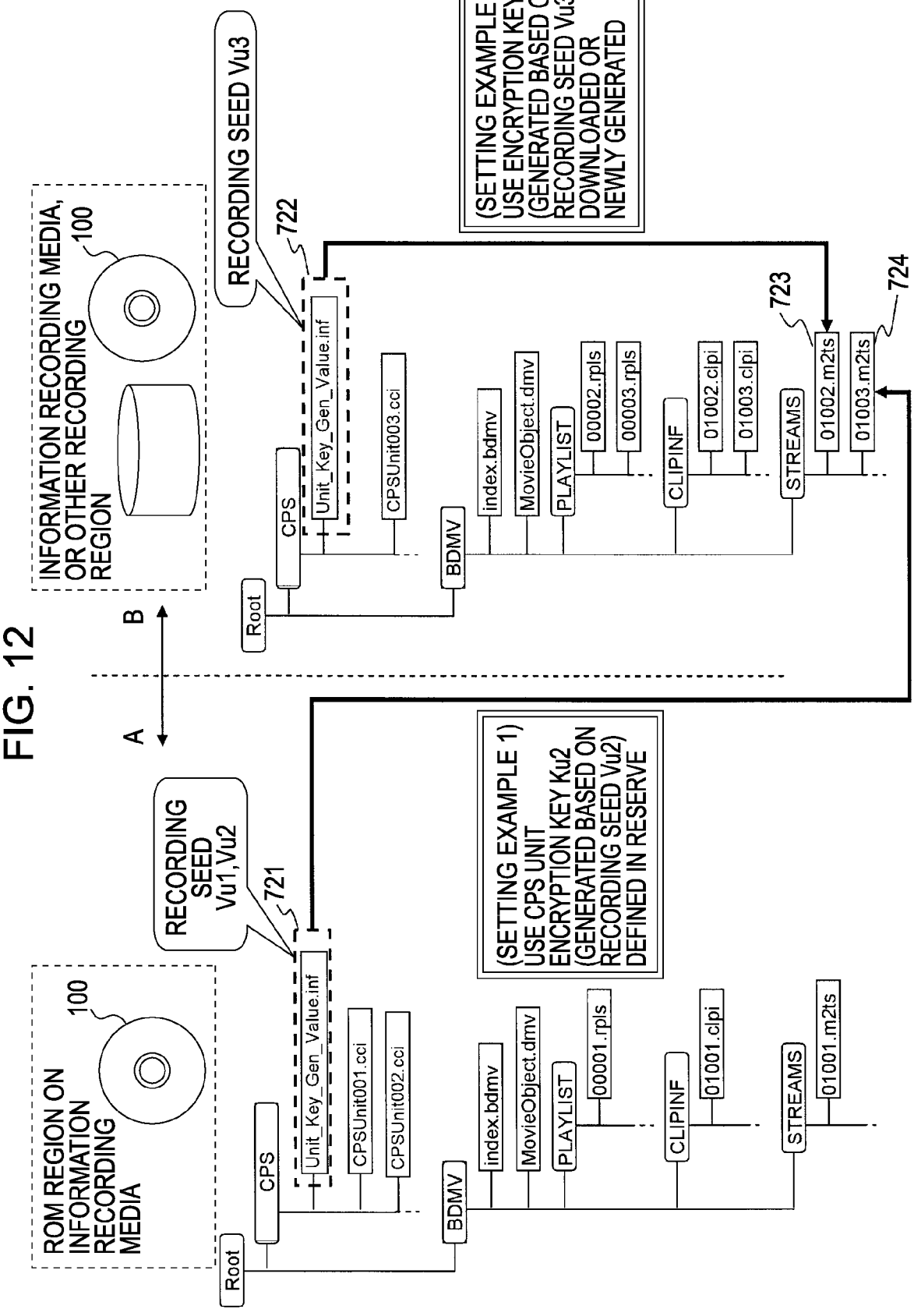

ROM REGION ON INFORMATION RECORDING MEDIA
100
Root
CPS
Unit_Key_Gen_Value.inf
CPSUnit001.cci
BDMV
index.bdmv
MovieObject.dmv
PLAYLIST
00001.rpls
CLIPINF
01001.clpi
STREAMS
01001.m2ts
713
715
A
B
INFORMATION RECORDING MEDIA, OR OTHER RECORDING REGION
100
Root
CPS
Unit_Key_Gen_Value.inf
CPSUnit002.cci
BDMV
index.bdmv
MovieObject.dmv
PLAYLIST
00002.rpls
00003.rpls
CLIPINF
01002.clpi
01003.clpi
STREAMS
01002.m2ts
01003.m2ts
714
711
712
(SETTING EXAMPLE 1) APPLY REPRODUCE/COPY CONTROL INFORMATION DEFINED IN ROM REGION
(SETTING EXAMPLE 2) APPLY REPRODUCE/COPY CONTROL INFORMATION DEFINED SEPARATELY FOR GENERATED DATA

FIG. 12


ROM REGION ON INFORMATION RECORDING MEDIA
100
Root
CPS
Unit_Key_Gen_Value.inf
CPSUnit001.cci
CPSUnit002.cci
BDMV
index.bdmv
MovieObject.dmv
PLAYLIST
00001.rpls
CLIPINF
01001.clpi
STREAMS
01001.m2ts
RECORDING SEED Vu1,Vu2
721
(SETTING EXAMPLE 1)
USE CPS UNIT ENCRYPTION KEY Ku2
(GENERATED BASED ON RECORDING SEED Vu2)
DEFINED IN RESERVE
A
B
INFORMATION RECORDING MEDIA, OR OTHER RECORDING REGION
100
RECORDING SEED Vu3
722
(SETTING EXAMPLE 2)
USE ENCRYPTION KEY Ku3
(GENERATED BASED ON RECORDING SEED Vu3)
DOWNLOADED OR NEWLY GENERATED
Root
CPS
Unit_Key_Gen_Value.inf
CPSUnit003.cci
BDMV
index.bdmv
MovieObject.dmv
PLAYLIST
00002.rpls
00003.rpls
CLIPINF
01002.clpi
01003.clpi
STREAMS
723
01002.m2ts
01003.m2ts
724

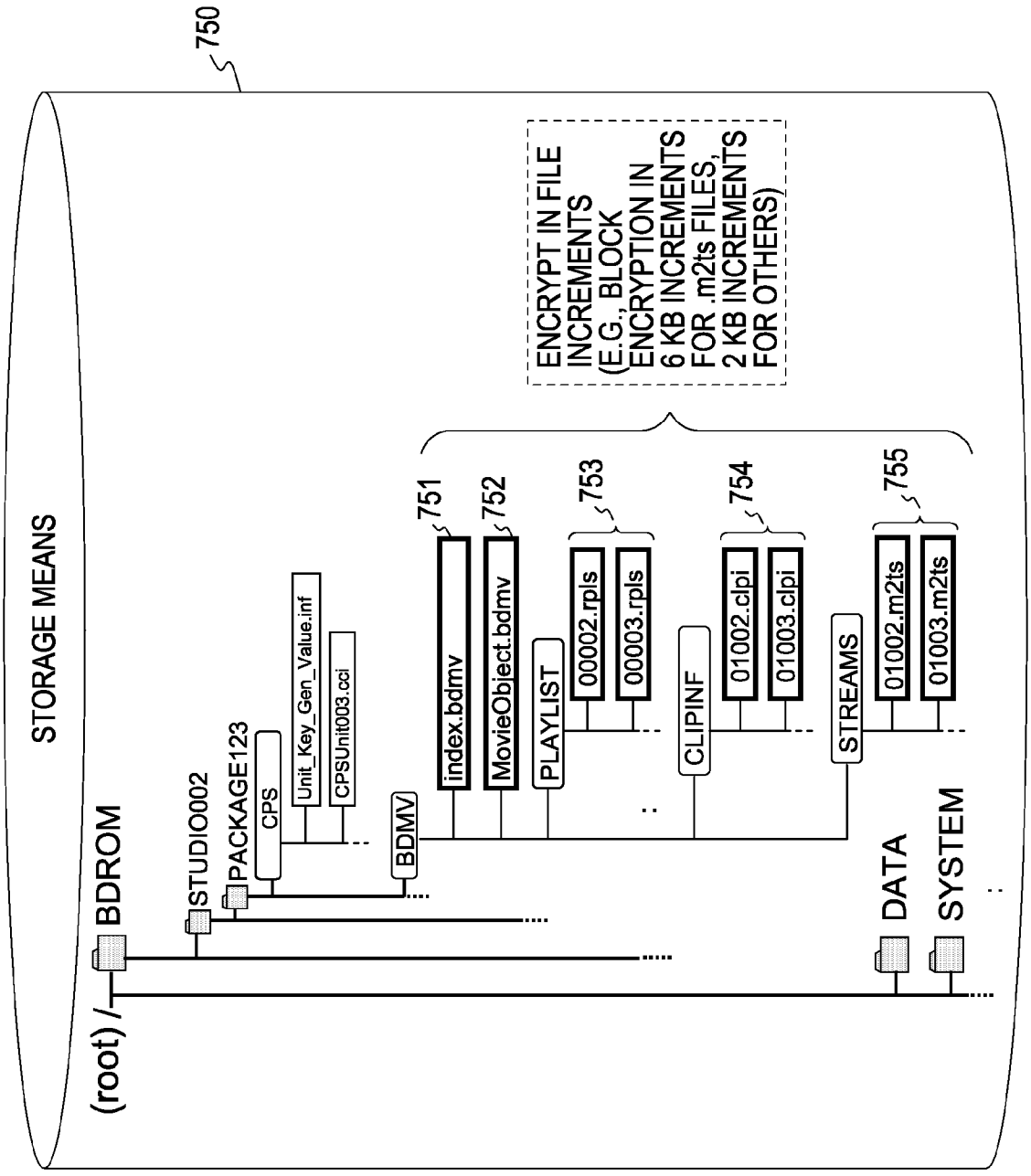

750
STORAGE MEANS
(root) /
BDROM
STUDIO002
PACKAGE123
CPS
Unit_Key_Gen_Value.inf
CPSUnit003.cci
BDMV
751
index.bdmv
752
MovieObject.bdmv
PLAYLIST
753
00002.rpls
00003.rpls
CLIPINF
754
01002.clpi
01003.clpi
STREAMS
755
01002.m2ts
01003.m2ts
DATA
SYSTEM
ENCRYPT IN FILE INCREMENTS (E.G., BLOCK ENCRYPTION IN 6 KB INCREMENTS FOR .m2ts FILES, 2 KB INCREMENTS FOR OTHERS)

FIG. 13

FIG. 14

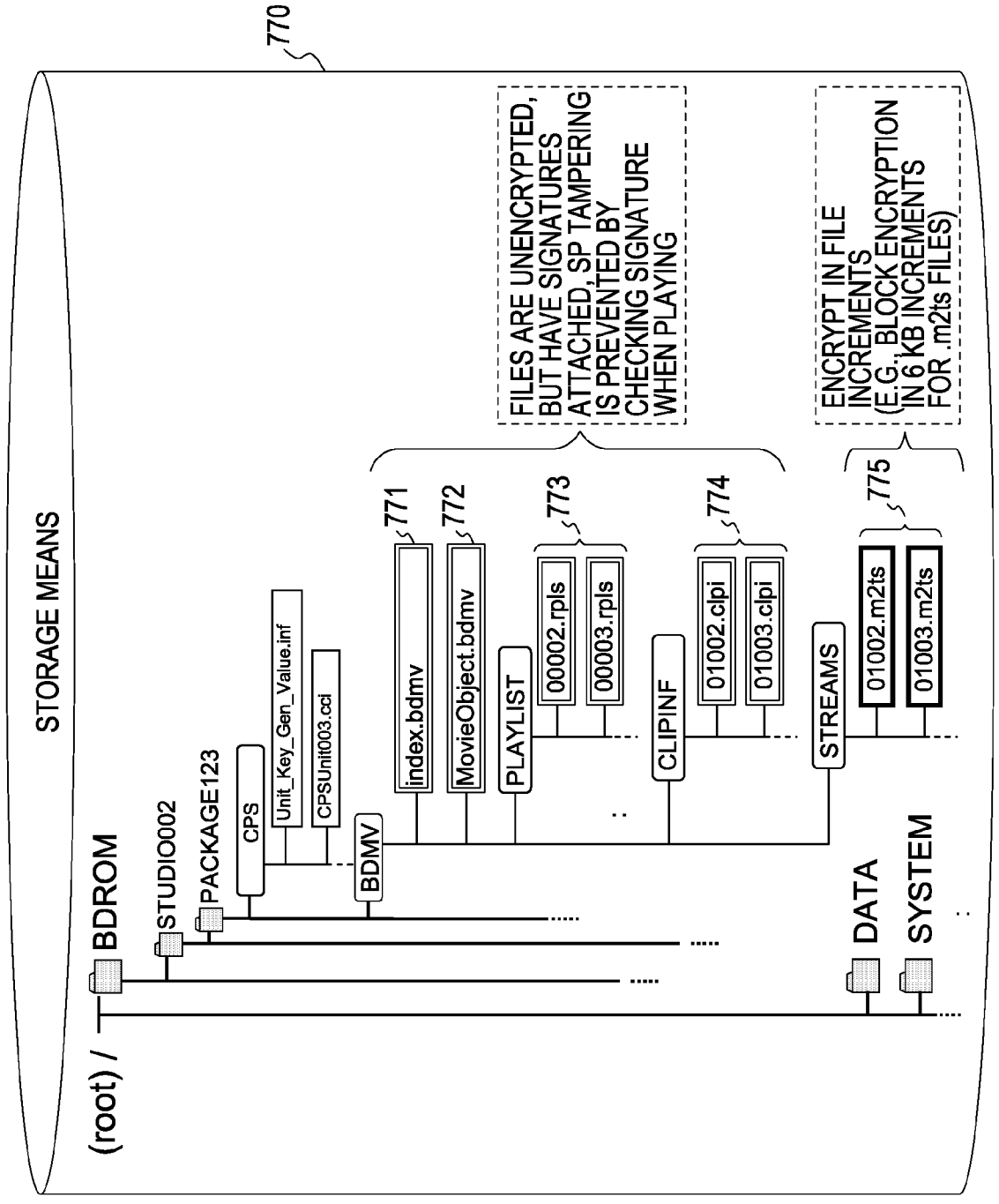

770
STORAGE MEANS
(root) /
BDROM
STUDIO002
PACKAGE123
CPS
Unit_Key_Gen_Value.inf
CPSUnit003.cci
BDMV
771
index.bdmv
772
MovieObject.bdmv
PLAYLIST
773
00002.rpls
00003.rpls
CLIPINF
774
01002.clpi
01003.clpi
STREAMS
775
01002.m2ts
01003.m2ts
DATA
SYSTEM
FILES ARE UNENCRYPTED, BUT HAVE SIGNATURES ATTACHED, SP TAMPERING IS PREVENTED BY CHECKING SIGNATURE WHEN PLAYING
ENCRYPT IN FILE INCREMENTS (E.G., BLOCK ENCRYPTION IN 6 KB INCREMENTS FOR .m2ts FILES)

FIG. 15

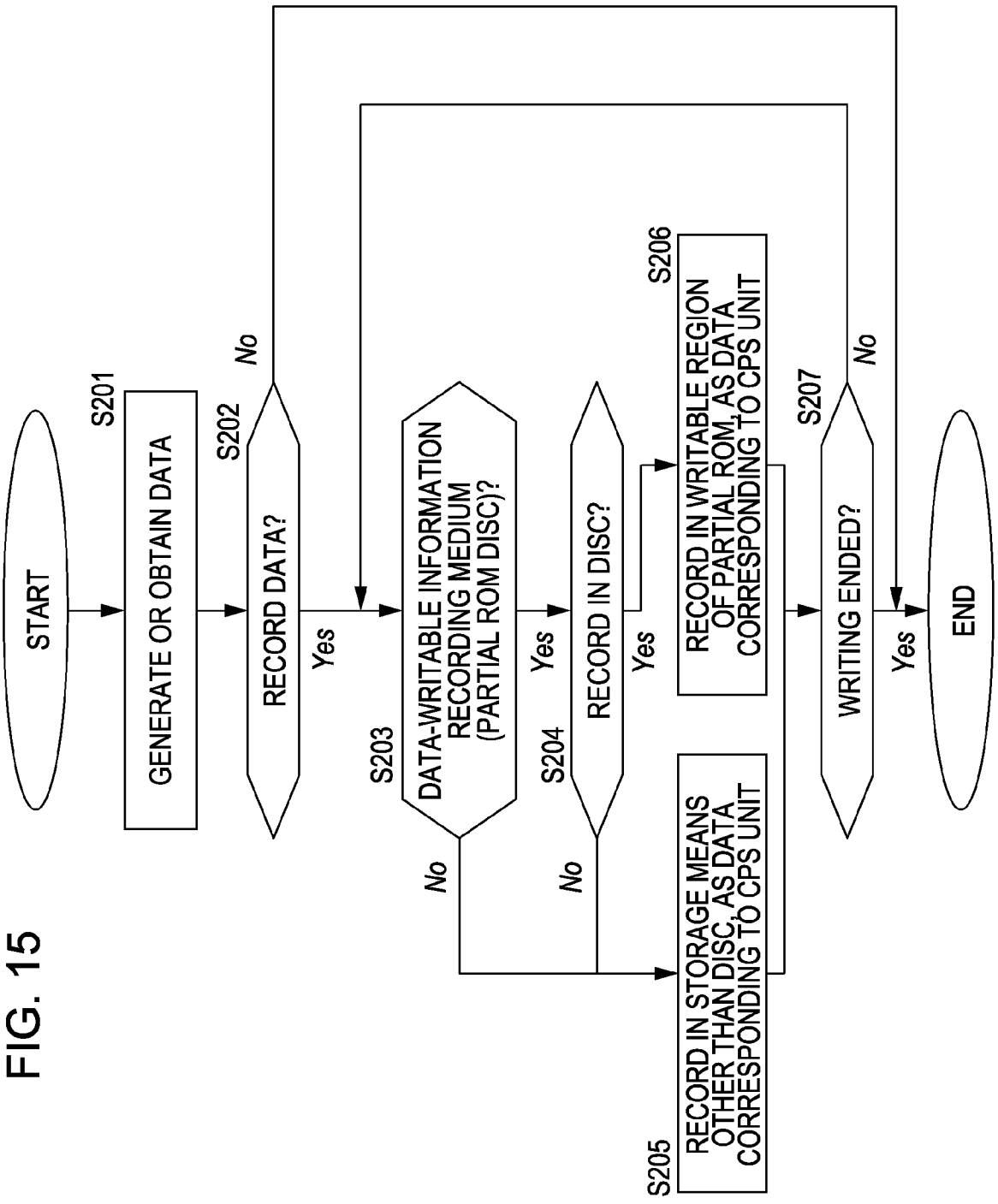

START
S201
GENERATE OR OBTAIN DATA
S202
RECORD DATA?
No
Yes
S203
DATA-WRITABLE INFORMATION RECORDING MEDIUM (PARTIAL ROM DISC)?
No
Yes
S204
RECORD IN DISC?
No
Yes
S205
RECORD IN STORAGE MEANS OTHER THAN DISC, AS DATA CORRESPONDING TO CPS UNIT
S206
RECORD IN WRITABLE REGION OF PARTIAL ROM, AS DATA CORRESPONDING TO CPS UNIT
S207
WRITING ENDED?
No
Yes
END

FIG. 16

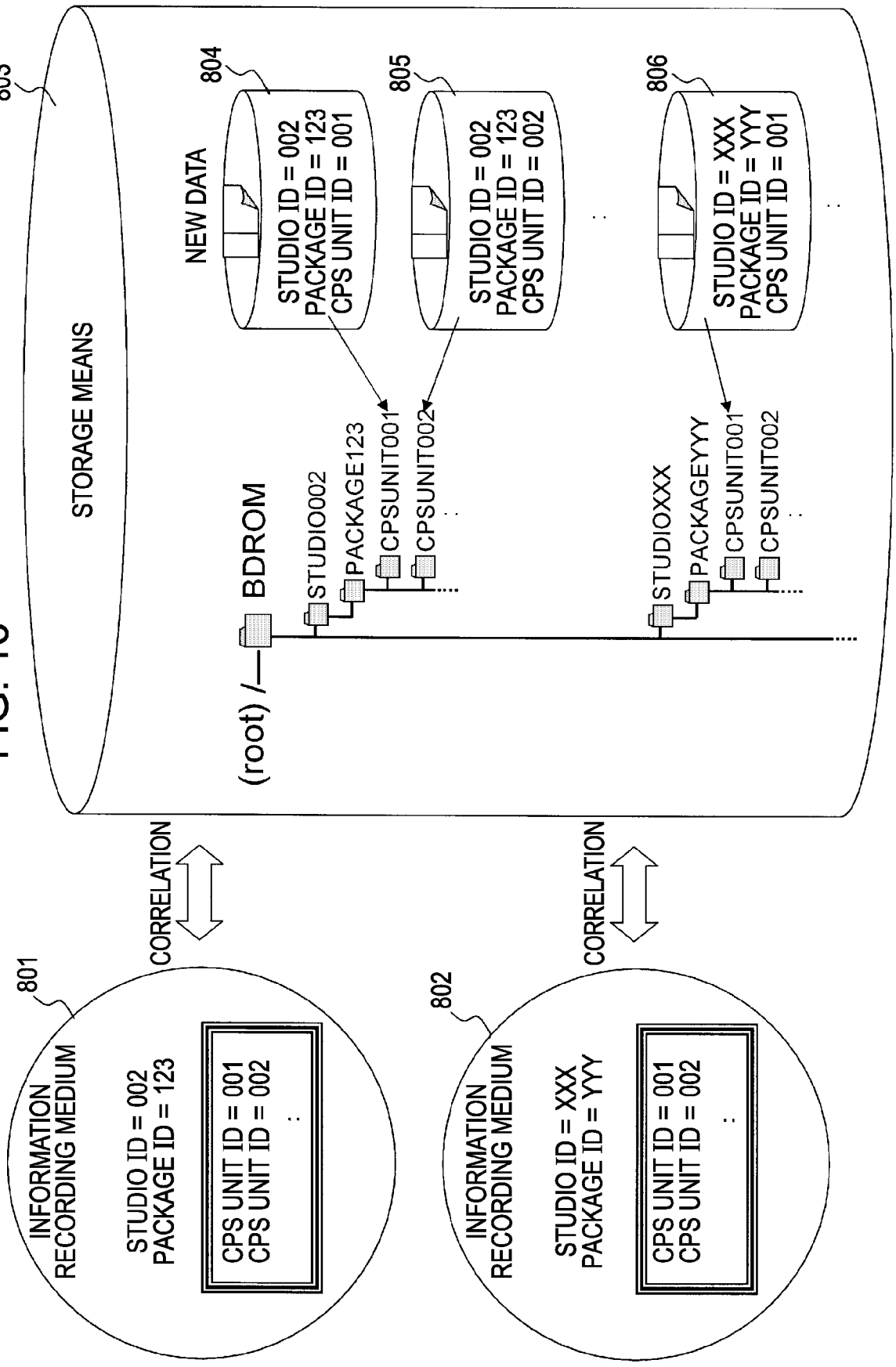

803
STORAGE MEANS
804
805
806
NEW DATA
STUDIO ID = 002
PACKAGE ID = 123
CPS UNIT ID = 001
STUDIO ID = 002
PACKAGE ID = 123
CPS UNIT ID = 002
STUDIO ID = XXX
PACKAGE ID = YYY
CPS UNIT ID = 001
(root)
BDROM
STUDIO002
PACKAGE123
CPSUNIT001
CPSUNIT002
STUDIOXXX
PACKAGEYYY
CPSUNIT001
CPSUNIT002
CORRELATION
CORRELATION
801
802
INFORMATION RECORDING MEDIUM
STUDIO ID = 002
PACKAGE ID = 123
CPS UNIT ID = 001
CPS UNIT ID = 002
INFORMATION RECORDING MEDIUM
STUDIO ID = XXX
PACKAGE ID = YYY
CPS UNIT ID = 001
CPS UNIT ID = 002

FIG. 17

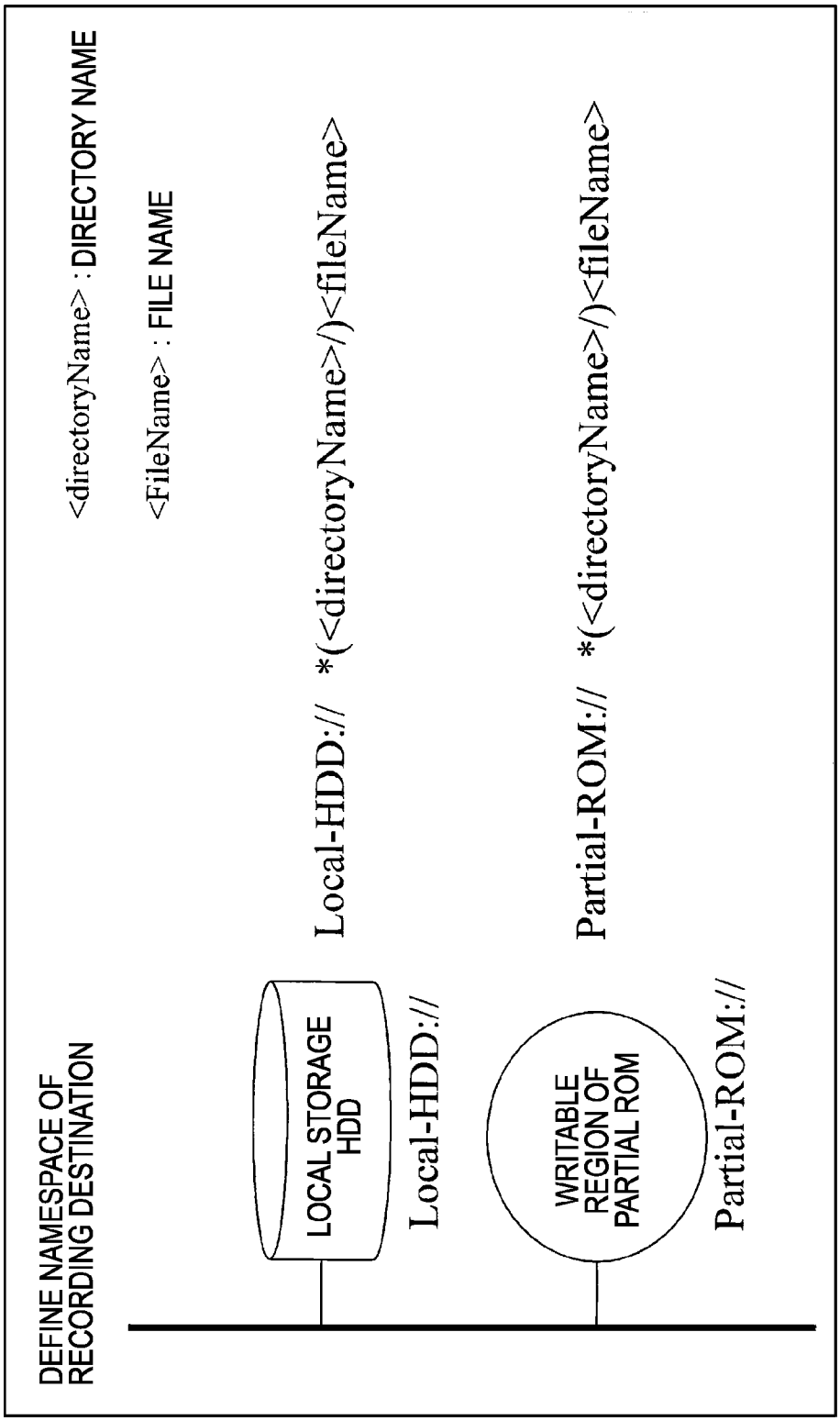

DEFINE NAMESPACE OF RECORDING DESTINATION
<directoryName> : DIRECTORY NAME
<FileName> : FILE NAME
LOCAL STORAGE HDD
Local-HDD://
Local-HDD:// *(<directoryName>/)<fileName>
WRITABLE REGION OF PARTIAL ROM
Partial-ROM://
Partial-ROM:// *(<directoryName>/)<fileName>

FIG. 18

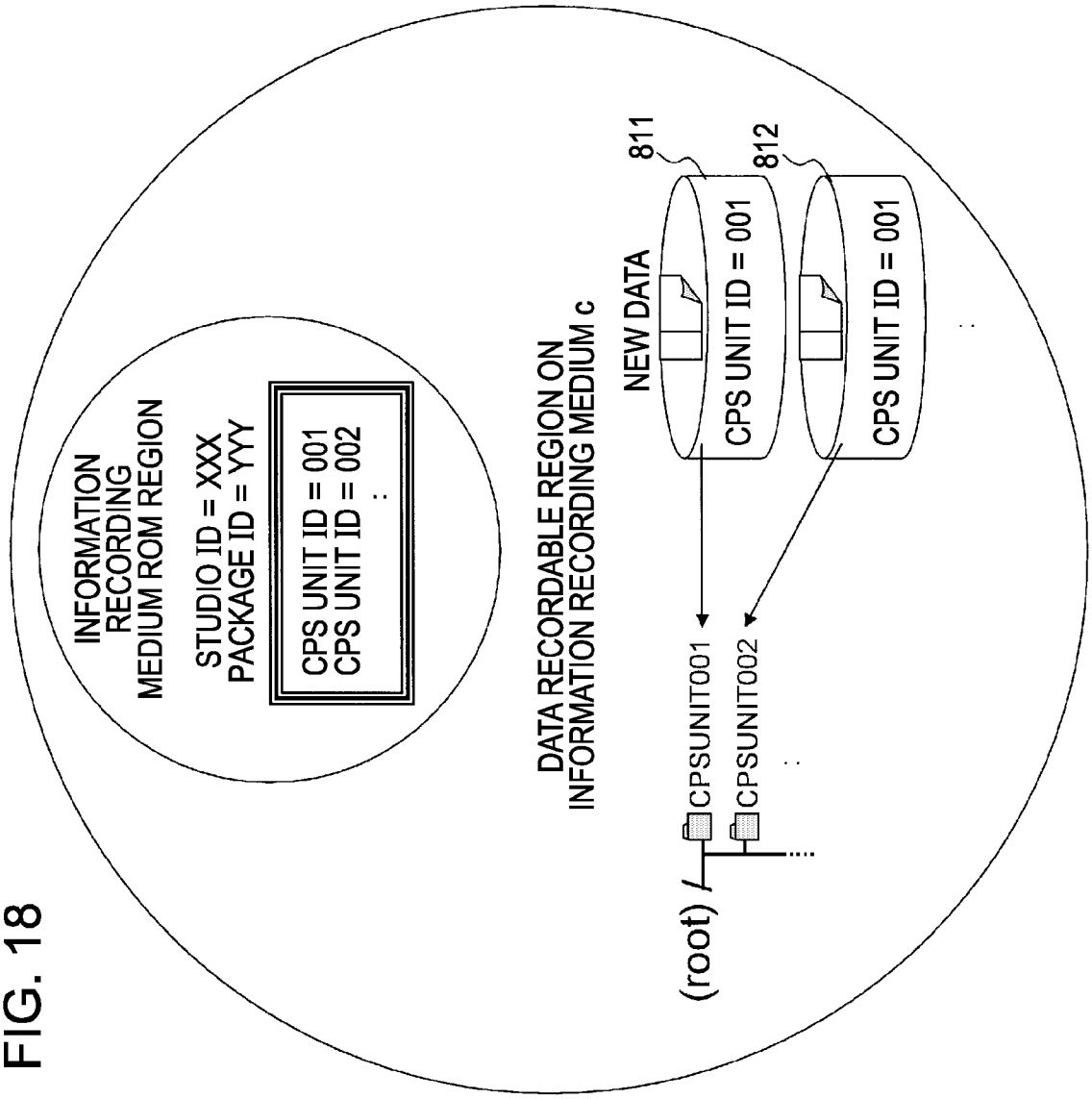

INFORMATION RECORDING MEDIUM ROM REGION
STUDIO ID = XXX
PACKAGE ID = YYY
CPS UNIT ID = 001
CPS UNIT ID = 002
DATA RECORDABLE REGION ON INFORMATION RECORDING MEDIUM c
NEW DATA
811
812
CPS UNIT ID = 001
CPS UNIT ID = 001
(root)
CPSUNIT001
CPSUNIT002

FIG. 19

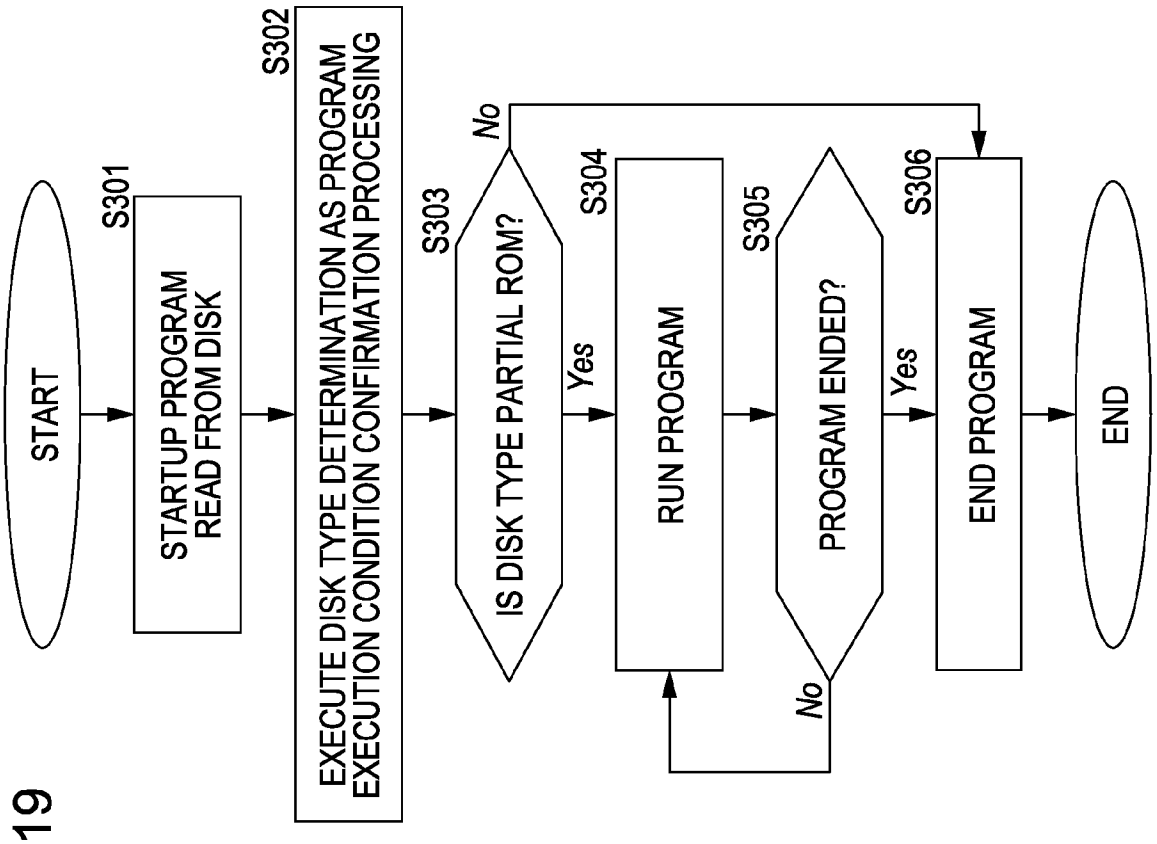

START
S301
STARTUP PROGRAM
READ FROM DISK
S302
EXECUTE DISK TYPE DETERMINATION AS PROGRAM
EXECUTION CONDITION CONFIRMATION PROCESSING
S303
IS DISK TYPE PARTIAL ROM?
No
Yes
S304
RUN PROGRAM
S305
PROGRAM ENDED?
No
Yes
S306
END PROGRAM
END

FIG. 20

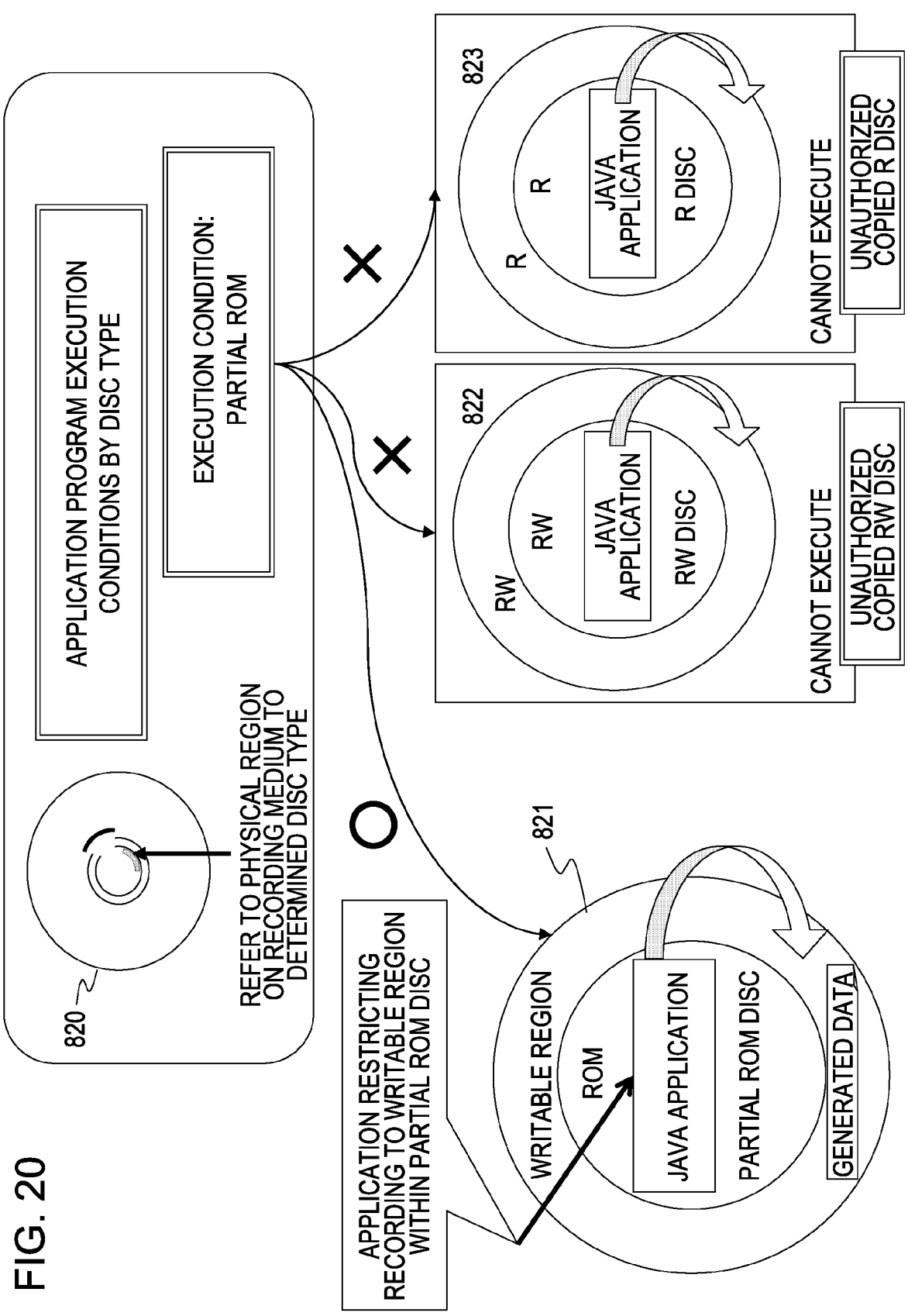
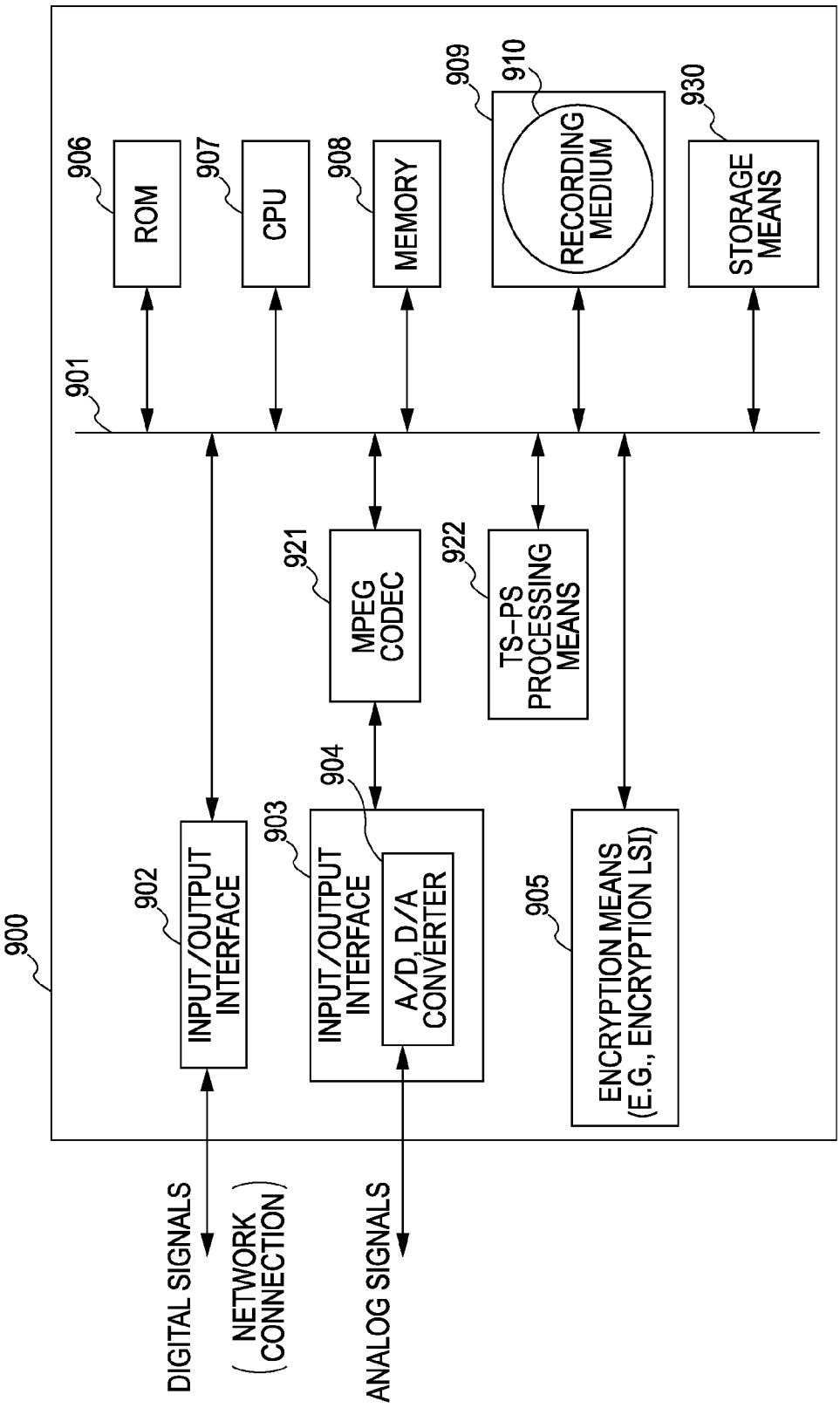

APPLICATION PROGRAM EXECUTION CONDITIONS BY DISC TYPE
EXECUTION CONDITION: PARTIAL ROM
820
REFER TO PHYSICAL REGION ON RECORDING MEDIUM TO DETERMINED DISC TYPE
APPLICATION RESTRICTING RECORDING TO WRITABLE REGION WITHIN PARTIAL ROM DISC
821
WRITABLE REGION
ROM
JAVA APPLICATION
PARTIAL ROM DISC
GENERATED DATA
822
RW
RW
JAVA APPLICATION
RW DISC
CANNOT EXECUTE
UNAUTHORIZED COPIED RW DISC
823
R
R
JAVA APPLICATION
R DISC
CANNOT EXECUTE
UNAUTHORIZED COPIED R DISC

FIG. 21


900
901
902
INPUT/OUTPUT INTERFACE
903
INPUT/OUTPUT INTERFACE
904
A/D, D/A CONVERTER
905
ENCRYPTION MEANS (E.G., ENCRYPTION LSI)
906
ROM
907
CPU
908
MEMORY
909
910
RECORDING MEDIUM
921
MPEG CODEC
922
TS-PS PROCESSING MEANS
930
STORAGE MEANS
DIGITAL SIGNALS
NETWORK CONNECTION
ANALOG SIGNALS